



**Fukushima Nuclear Disaster  
Recovery Capabilities  
and Solutions**

# Our International Team

Lead: ARS International, LLC

- Higashidashoukou, Inc (JP)
  - Sky Environmental Services (US, UK)
  - Power Plus (US)
  - Hazmat Logistics (UK)
  - Radwise (UK)
  - UniTech EU Services Group (US, UK and EU)
- 30+ years international nuclear experience
  - Excellent regulatory compliance and safety record

*Our Core Values are to do it safely,  
compliantly, cost-effectively and right the  
first time.*



# Our Comprehensive Expertise

- Post-disaster/emergency response
- Soil and groundwater remediation
- International Deactivation and Decommissioning experience
- Plant and equipment mapping
- Innovative and bespoke designed waste strategies and management solutions
- Waste characterization
- Mobile, in-country and international analytical services capabilities for both radiological and chemical constituents
- Mobile laundry service & personnel monitoring/decontamination facilities
- Radiological Protection and Monitoring
- Project planning and management
- Radiation protection and waste management training of local employees



# Innovative Technologies

- Cleaning solutions - contaminated soil, structures/equipment, and infrastructure
- Dry ice and/or grit blasting
- Scabbling
- Acid/Base Washing
- Encapsulate
- Robotic demolition
- Water treatment
- Waste minimization
- Remote mapping
- Mobile services



# Key Clients

- **Mitsubishi**
- **Japan Environmental Assess Co., Ltd**
- **Morinaga Dairy**
- **World Bank**
- **Magnox, LTD; EDF**
- **URENCO**
- **US NRC, IAEA**
- **DOE, DOD and USACE**
- **Shell, Chevron, BP, Exxon**
- **Other International Clients**



# LABORATORY SERVICES

## Mobile Laboratory

- Located at project site
- Chemical and radiological capabilities
- Cost efficient, rapid data turnaround
- Facilitates real time decision making



## Fixed Laboratory

- Full Service Capabilities
- Overnight sample transport from any international location
- Certified to International Quality Standards
- In-country and out-of-country services



# INTEGRATED RADIOACTIVE WASTE MANAGEMENT

- Demonstrated ability to develop Regulatory frameworks/strategies, Integrated Waste Management and Decommissioning Plans and Radioactive Waste Inventories
- Proven waste management and disposal optioneering based on Best Technologies and Practices
- Extensive international radiological and hazardous waste management “hands-on” experience
  - Characterization, monitoring and assaying
  - Processing , Packaging and Safe Storage
  - Transportation and Disposal
- Design and implementation of radioactive waste management and processing facilities





# MAPPING AND CHARACTERIZATION

## 3D Laser Mapping

- Data collection from contaminated or damaged facilities
- 3D imagery of pipes, plant, pools and structures
- Approach reduces potential for workers dose exposure and enables offsite engineering, characterization and decommissioning planning



## Characterization

- Systematic characterization process of plant, structures and environment
- Supports development of waste inventories, decommissioning strategy and disposal planning
- Formal process with underpinned decisions based on DQO, MARSSIM, MARSAME, EURSSEM and IAEA principles
- Includes sampling, analysis and data interpretation



# Soil and Surface Decontamination

- Multiple field-proven treatment processes
- Targets beta and gamma emitting radionuclides
- Demonstrated up to 95% removal of Fukushima radionuclides
- Minimal secondary wastes
- In-situ and ex-situ technologies
- Maintains soil nutrient values
- Achieves IAEA unrestricted use



# DEACTIVATION AND DECOMMISSIONING

- Contaminated/non-contaminated asbestos abatement
- Spill abatement and remediation
- Process system and equipment decontamination and removal
- De-energization, de-planting and safe shutdown of process systems
- Contaminated soil remediation
- Structural/equipment decontamination
- Recycling, when possible



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